

NAS Enterprise Architecture Integrated Roadmaps

Version 2.0
January 2, 2008

2008 2009 2010 2011

Timeline – provides chronological context for system IOC, decommissioning, and decision points

SWIM Segmt. 1

SWIM Segment 1

SWIM Segmt. 2

SWIM Segment 2

SWIM Segmt. 3

SWIM Segment 3

Systems related to Data Communications Segment 1

Systems related to Data Communications Segment 1

Systems related to Data Communications Segment 2

Systems related to Data Communications Segment 2

Systems related to Data Communications Segment 3

Systems related to Data Communications Segment 3

NextGen Wx Requirements

Note box

TMA Upgrades

System – any current or planned NAS system (i.e., a collection of components working together to provide a functional solution to a need or problem)

Functional system

Functional system

35

Decision point for any roadmap program

4

Completed Decision Point

75

Decision point related to a NextGen Automation program (i.e. shaded magenta)

1

SWIM Segment 1 decision point (i.e. shaded blue)

55

SWIM Segment 2 decision point (i.e. shaded mustard)

*
X

Decision point related to ADS-B

Decommission

→

System successor

- - - →

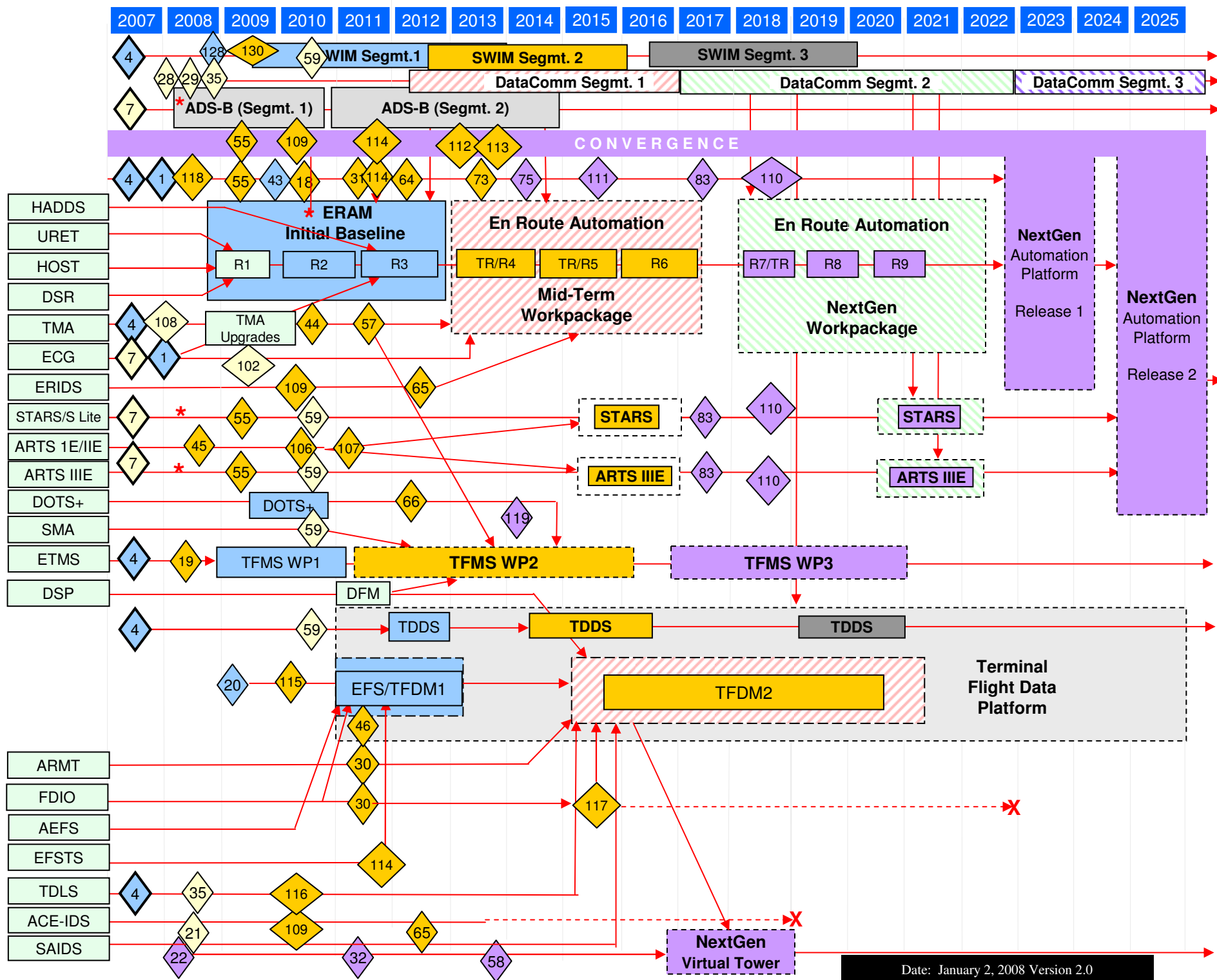
System in draw-down mode

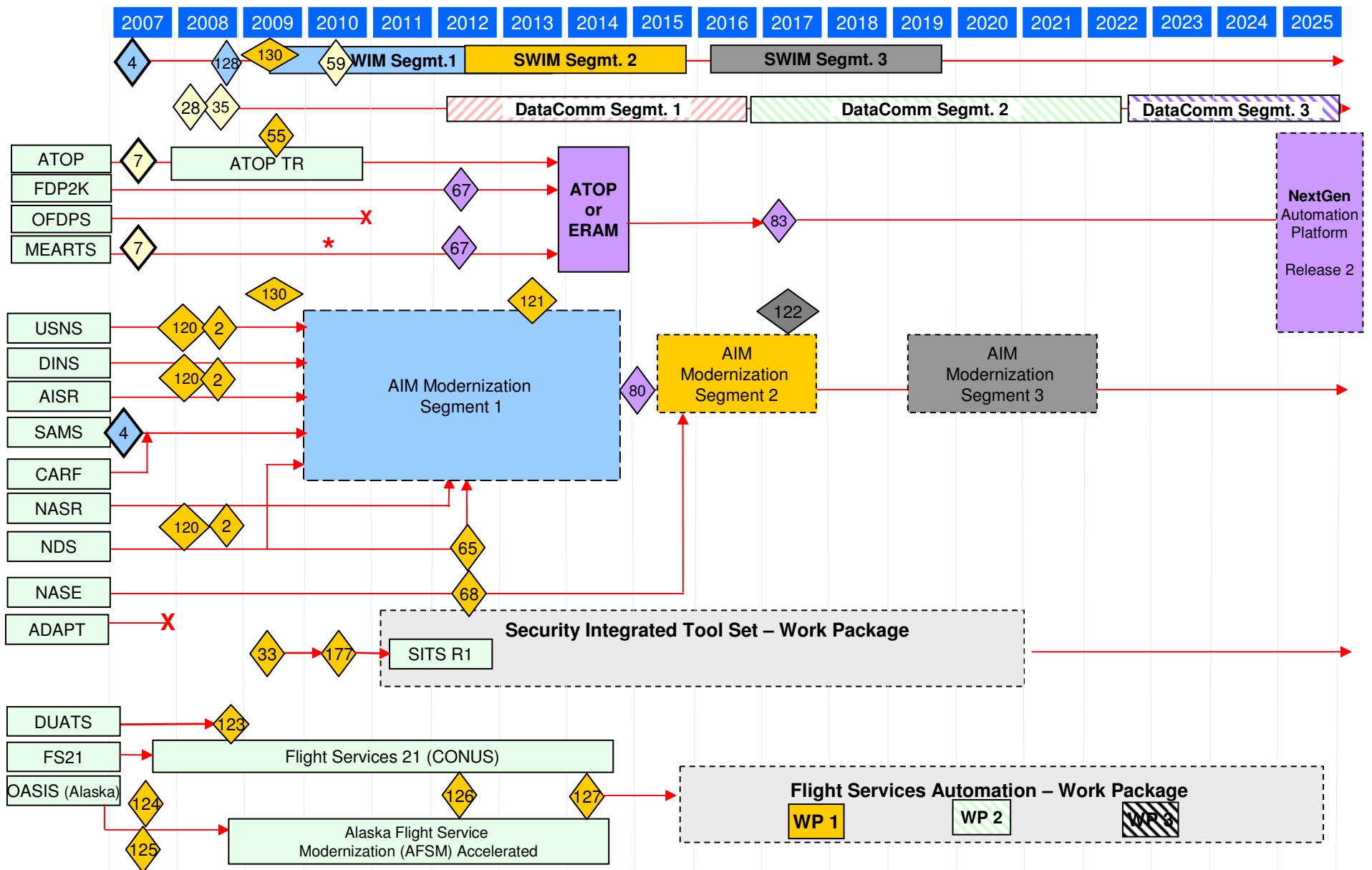
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System dependency

↗ ↘

System functionality is being redistributed





Automation Roadmap Decisions (1 of 5)

- 1 2007 – Approve ERAM Release 2 package contents
- 2 2008 – AIM modernization Segment 1 final investment decision
- 18 2010 – Approve requirements for En Route Automation Mid-Term work package initial investment
- 19 2008 – Approve TFMS Work work package 2 (mid-term) package content
- 20 2009 – Approve EFS final investment to migrate towards TFDM functional capability
- 21 2008 – SAIDS/ACE-IDS near-term sustainment final investment
- 22 2008 – Approve NextGen Staff Virtual Tower ConOps
- 29 2008 – Submit Airborne data integrity requirements to Automation mid-term work package to support exchange of Air-Ground data
- 30 2011 – Approve migration of ARMT, DFM and TMA to Tower displays to TFDM and/or TFMS WP 2
- 31 2011 – Approve requirements for En Route Automation Mid-Term Work package final investment decision and En Route Automation release 4 package content
- 32 2011 – NextGen Staff Virtual Tower initial investment decision
- 33 2009 – Investment Decision to define the application for integration into Security Integrated Tool Set (SITS)
- 43 2009 – Approve ERAM Release 3 package contents

Automation Roadmap Decisions (2 of 5)

- 44 2010 – Approve migration of TMA to ERAM and/or TFMS initial investment
- 45 2008 – ARTS 1E/IIIE: Initial migration towards common STARS/ARTS IIIE configurations
- 46 2011 – Approve Tower Flight Data Manager 2 final investment
- 55 2009 – Approve common front end display components for Radar Display (i.e., R-side) monitor
- 57 2011 – Approve migration of TMA to En Route Automation and/or TFMS WP2 final investment
- 58 2013 – NextGen Staff Virtual Tower final investment decision
- 64 2012 – Approve En Route Automation Release 5 package contents
- 65 2012 – Final investment decision for common Information Display (IDS) capability in En Route and Terminal
- 66 2012 – Executive approval to integrate DOTS+ functionality into TFMS WP2
- 67 2012 – Executive approval to replace CERAP Automation with En Route Automation or ATOP
- 68 2012 - Decision to support NASE integration with AIM
- 73 2013 - Approve En Route Automation Release 6 package contents












Automation Roadmap Decisions (3 of 5)

- 75 2014 – Approve requirements for En Route Automation NextGen Work package initial investment
- 80 2015 – Decision supporting AIM integration
- 83 2017 – Approve transition to NextGen automation platforms and display subsystem through convergence initial investment
- 106 2010 – ARTS 1E/IIE: Investment decision to sustain & upgrade hardware and software until full migration is completed
- 107 2011 ARTS IIE: Approve system migration to either ARTS IIIE and/or STARS final investment
- 108 2008 – Decision to award a follow on contract for TMA Upgrades
- 109 2010 – Assessment of common Information Display Systems (IDS) capability in EnRoute and Terminal
- 110 2018 – Approve final investment for transition to NextGen automation platforms and display subsystem through convergence
- 111 2015 – Approve requirements for En Route Automation NextGen Work package final investment
- 112 2013 – Decision for common Terminal and En Route R-side display (e.g., Hardware and Software)
- 113 2013 – Assess common Surveillance Data Processing for Terminal and En Route automation (e.g., 3 mile separation, fusion)
- 114 2011- Decision for common display (e.g, H/W and S/W platforms) of electronic flight data for En Route and Terminal automation

Automation Roadmap Decisions (4 of 5)

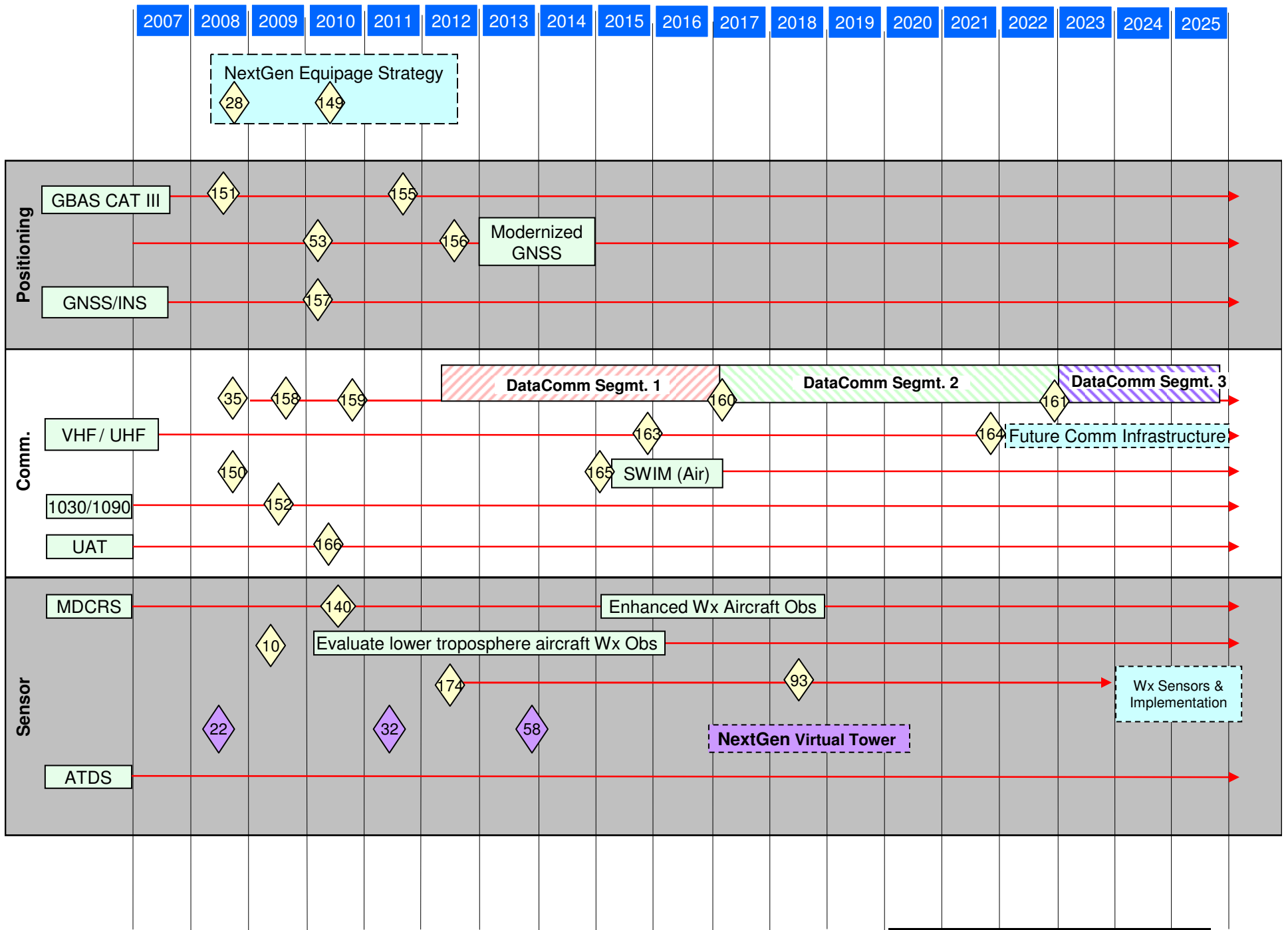
- ◆ 115 2010 - Approve Tower Flight Data Manager 2 initial investment
- ◆ 116 2010 – TDLS near-term sustainment final investment
- ◆ 117 2015 - Decision to decommission FDIO systems
- ◆ 118 2008 – Define and approve En Route pre-implementation acquisition strategy
- ◆ 119 2014 - Approve TFMS Work Package 3 contents
- ◆ 120 2008 – AIM Modernization Segment 1 Initial Investment Decision
- ◆ 121 2013 – AIM Modernization Segment 2 Final Investment Decision
- ◆ 122 2017 – AIM Modernization Segment 3 Final Investment Decision
- ◆ 123 2008 – Continuation of DUAT Services
- ◆ 124 2007 – Continuation of pre-flight and in-flight "Flight Services" in Alaska
- ◆ 125 2007 – Alaska Flight Service Modernization (AFSM) accelerated approach (Segment 1- automation/voice switch) receives EC Final Investment Decision (FID)
- ◆ 126 2012 – JRC/EC Initial Investment Decision (IID) Flight Services Automation

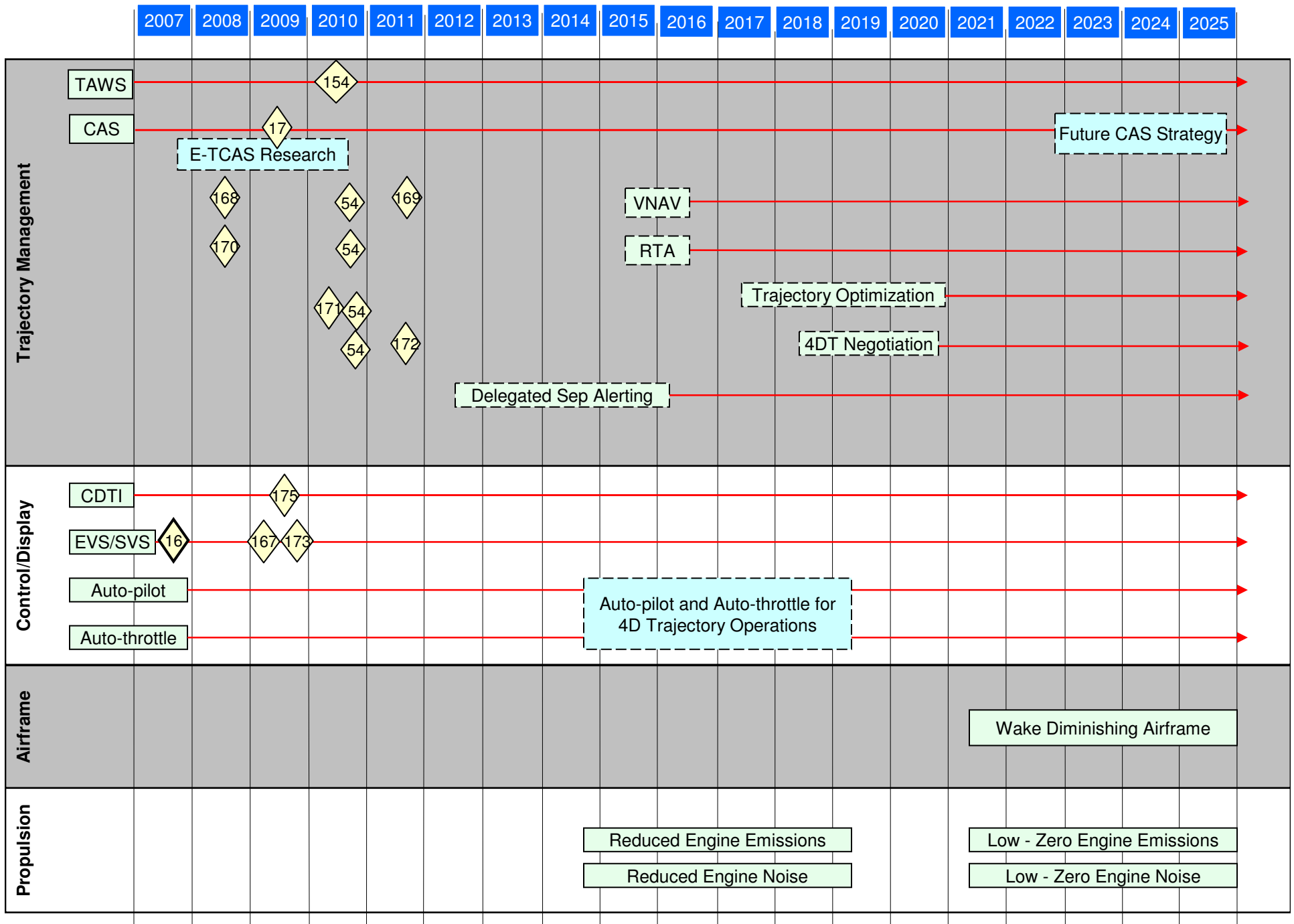
Automation Roadmap Decisions (5 of 5)

-  127 2013 – JRC/EC Final Investment Decision (FID) Flight Services Automation
-  177 2009 – Initial/Final investment decision for SITS
-  4 2007 – See Communication Roadmap (Completed)
-  7 2007 – See Surveillance Roadmap (Completed)
-  35 2008 – See Communication Roadmap
-  28 2008 – See Aircraft Roadmap
-  29 2008 – See Aircraft Roadmap
-  59 2010 – See Communication Roadmap
-  102 2009 – See Surveillance Roadmap
-  128 2008 – See Communication Roadmap
-  130 2009 – See Communication Roadmap












Automation Roadmap Assumptions

- Overriding goals affecting automation include SWIM, ADS-B, Datacomm, Performance-Based ATM, and Trajectory-based Ops
 - Net-centric operations via SWIM-based architecture link ATM, customers, DHS, and DoD into common information environment
 - Trajectory-Based OPS where flight data are interchanged via data communications
- Consistent security management across datacomm Automation and SWIM supporting facility evolution
- Infrastructure supports airspace design where assets adjust to flow, not flow constrained by infrastructure
- Automation systems that provide service on the front-end are depicted
- End state Automation platforms are Tower, TFM, and ATC (EnRoute, TRACON and Oceanic)
- The following aircraft decisions may have an impact on automation: 28, 29, 149, 153, 158, 159, 160, 161, 162, 163, 164, 165, 168, 169, 170. For full descriptions see decision spreadsheet.















Aircraft Roadmap Milestones (1 of 3)

-  2007 Decision to develop avionics policy, standards and equipage strategy for Enhanced/Synthetic Vision Systems (EVS/SVS) to support low and zero visibility surface operations. (Completed)
-  2009 TCAS Research
-  2008 NextGen. Equipage Strategy
-  2010 Agency policy published on Navigation future configuration to be GNSS-based
-  2010 Decision to develop avionics policy and standards for Enhanced Aircraft Flight Management Systems to support 4D super density operations.
-  2018 Rulemaking decision for equipage of Weather Sensors and Wake Turbulence implementation
-  2010 Decision on Enhanced Weather Sensors to support enhanced wx observations and forecasting
-  2010 NextGen Equipage Implementation
-  2008 Airborne Communications Infrastructure
-  2008 Airborne Navigation Backup
-  2009 Cooperative Surveillance Concept

Aircraft Roadmap Milestones (2 of 3)

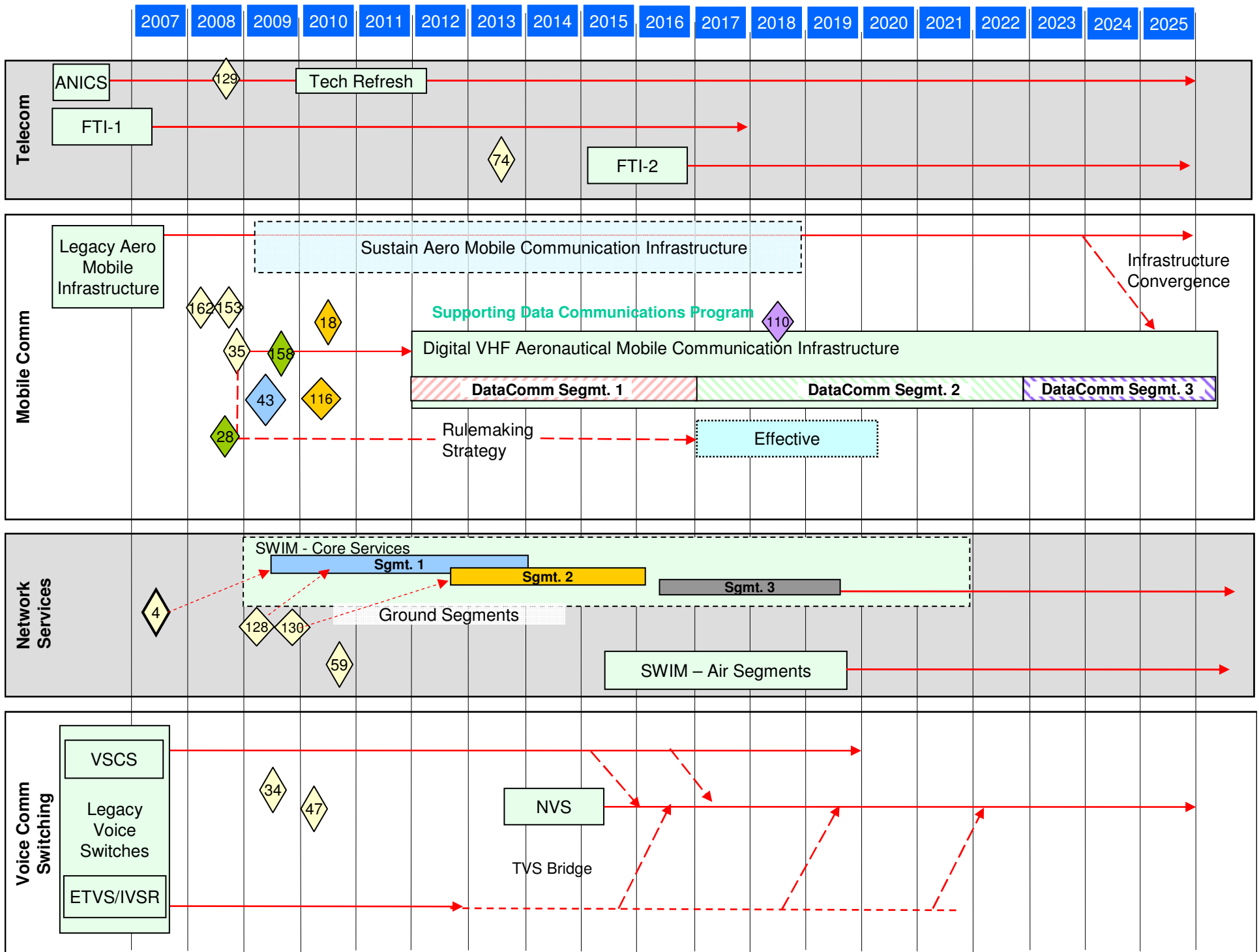
154	2010	Determine are TAWS algorithms sufficient for NextGen
155	2011	First operationally approved GBAS Cat III through proof-of-concept
156	2012	Initial new GNSS capabilities expected to become operational
157	2010	New standards for GNSS/IRU integration (including low-cost inertial systems)
158	2009	JRC 2b Final Investment Decision for Datacom (June)
159	2010	Datacom agency policy decision. Aircraft standards mature (2yrs prior to beginning equipage) Aircraft equipage begins
160	2017	Datacom Airspace prescription (policy effectivity date – timeframe TBD)
161	2022	Assume no airspace prescription based upon Segment 3 DLK; mixed-airspace strategy complete.
162	2008	Agency link decision for FCI
163	2015	VDLM-2/AOC performance to support Datacom Segment 2 and 3
164	2021	FCI Airspace prescription (policy effectivity date – timeframe TBD)
165	2015	SWIM Air Airspace prescription (policy effectivity date – timeframe TBD)

Aircraft Roadmap Milestones (3 of 3)

-  2015 Decision on enhanced FIS-B services
-  2009 Decision on Enhanced Vision System (EVS) architectures to support low and zero visibility approach and surface operations
-  2008 Decision on VNAV implementation (eg, as component of advanced RNP 1)
-  2011 Vertical requirements for 4DT
-  2008 Decision on implementation of required time of arrival (without full 4DT)
-  2010 Define role of aircraft vs AOC vs ATS in trajectory optimization (defining requested trajectory)
-  2011 4DT concept complete, including common definition of path and constraints
-  2009 Strategy for use of EFVS/SVS (Enhanced Flight Vision System/Synthetic Vision System) in future operations
-  2012 Agency policy to add ABWTS (Aircraft Based WT Separation) decision support capability to the flight deck
-  2009 Define integrated display requirements to support NextGen operations

Aircraft Roadmap Assumptions

- This aircraft roadmap defines avionics as they relate to OEP capabilities
 - Other required equipment and systems are not addressed (e.g., primary flight instruments)
- A minimum of 7 to 10 years is needed to achieve wide scale equipage of a new capability, from the time equipment becomes available
- Different aircraft are expected to equip with different equipment. This roadmap does not currently distinguish between aircraft types.
- Harmonization of Avionics EA with ground systems not complete:
 - End-to-End approval, safety, security and aircraft addressing (IP) are general concerns regarding the NAS
 - Any operation or improvement that is dependant on ACAS, airborne automation, dependent surveillance in, and addressing (IP) are far term implementations.



Communication Roadmap Decisions (1 of 2)

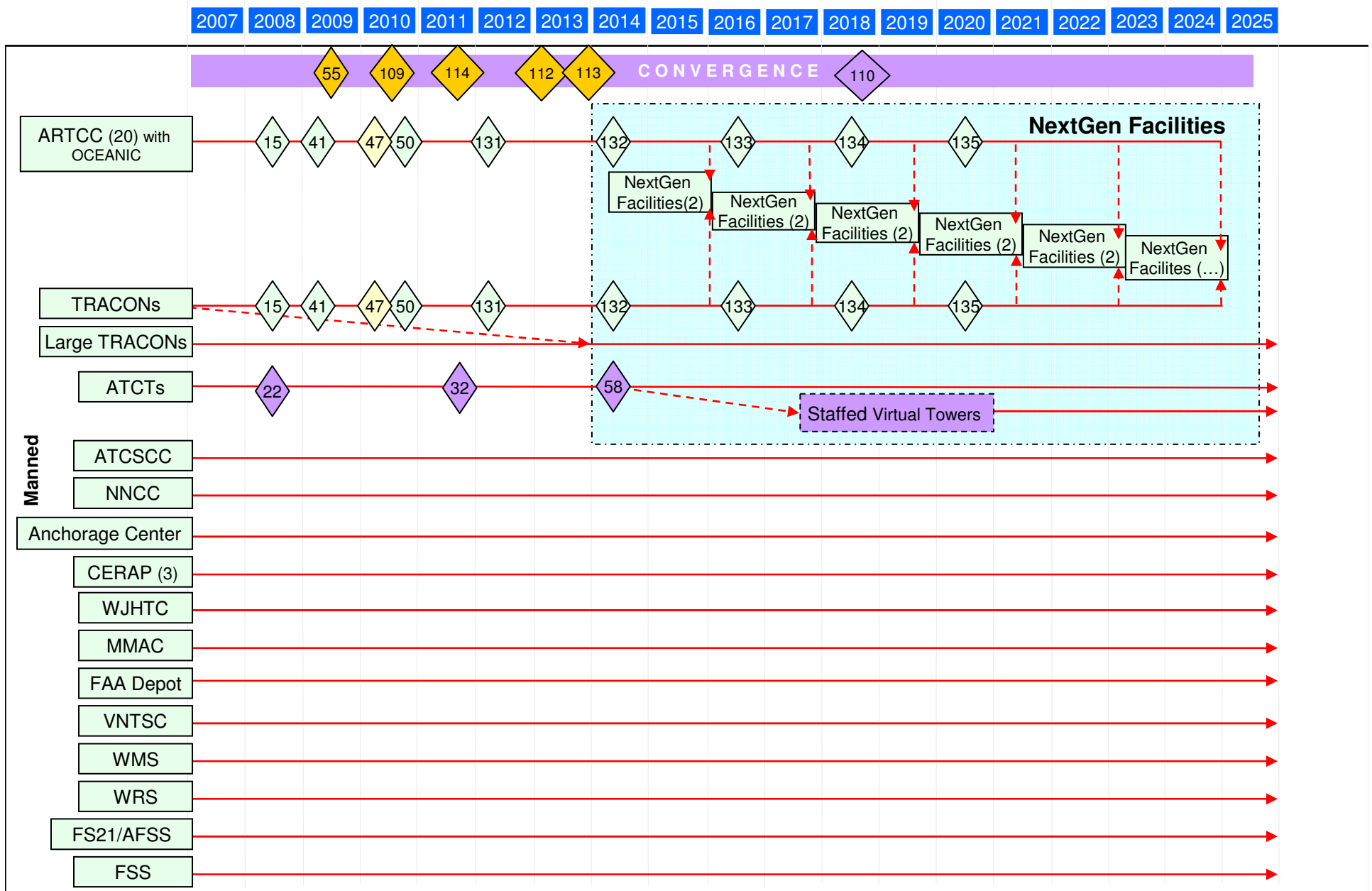
- 4 2007 – Final investment decision for SWIM ground segment 1 implementation (baseline for FY09-10)
- 34 2009 - Approve Terminal Voice Switch Bridge Contract
- 35 2008 - Determine FAA's initial investment strategy for the data communications program and the concomitant rulemaking strategy for airborne equipment.
- 47 2010 - Approve Final Investment Decision for NAS Voice Switch
- 59 2011 - Approve SWIM Airborne Segments Implementation
- 74 2013 - Approve FTI Re-Compete Decision
- 128 2009 - Final Investment Decision for SWIM Ground Segment 1+ Implementation (Baseline for FY11 – 13)
- 129 2008 – Final Investment Decision for ANICS Technical Refresh
- 130 2009 – Decision for down select for SWIM segment 2 candidates
- 153 2008 – A/C IP architecture to Support Ground IP Architecture

Communication Roadmap Decisions (2 of 2)

- 18 2009 – See Automation Roadmap
- 43 2009 - See Automation Roadmap
- 110 2018 – See Automation Roadmap
- 116 2010 – See Automation Roadmap
- 28 2008 – See Aircraft Roadmap
- 158 2010 – See Aircraft Roadmap

Communications Roadmap Assumptions



- NAS must transition from dedicated “nailed up” sector-based and independent facility operations to networked area based operations
- FTI becomes primary Voice/Data transport system
 - ANICS will not be integrated into FAA Telecommunications Infrastructure contract
- Next Generation Voice Switch is required to meet consolidation/collocation, Business Continuity Plan, Load balancing/Load Sharing, and 4D Trajectory concepts (resource mapped to flows)
- All flight safety critical A/G communications are over VHF based systems
 - 8.33 KHz spacing for voice communications may be necessary to provide sufficient spectrum for data communications
 - Advisory communications (e.g. Weather, NAS Status, NOTAMS) can be supported by commercial communications services through “airborne SWIM” services
 - Initial Implementation linked to NextGen Network Enabled Weather (NNEW) capability
- Infrastructure evolution is driven by
 - o Transition strategies start in higher altitude airspaces migrating toward lower altitudes
 - o Implementation starts in large facilities migrating to small facilities
 - o Expectation for reduction in number of facilities – (staffed and unstaffed)
 - o Infrastructure and people “dedicated to specific airspace” changing to “quickly and easily adapted to airspace as needed”
 - o Expectation for very low growth in number of operational sectors (“airspace growth”) through the mid term, limiting demand on dedicated resources
- The following aircraft decisions may have an impact on communications: 28, 29, 54, 149, 150, 153, 159, 160, 161, 162, 163, 164, 165, 171, 172. For full descriptions see decision spreadsheet.



Facilities Roadmap Decisions (1 of 2)

- 15 2008 – Concept Requirement and Development entrance decision for NextGen Facilities
- 41 2009 – Identify candidate airspace to be managed by the first two NextGen Facilities initial investment.
- 50 2010 – Identify candidate airspace to be managed by the first two NextGen Facilities final investment
- 131 2012 – Identify candidate airspace to be managed by the two additional NextGen Facilities final investment
- 132 2014 – Identify candidate airspace to be managed by the two additional NextGen Facilities final investment
- 133 2016 – Identify candidate airspace to be managed by the two additional NextGen Facilities final investment
- 134 2018 – Identify candidate airspace to be managed by the two additional NextGen Facilities final investment
- 135 2020 – Identify candidate airspace to be managed by the two additional NextGen Facilities final investment

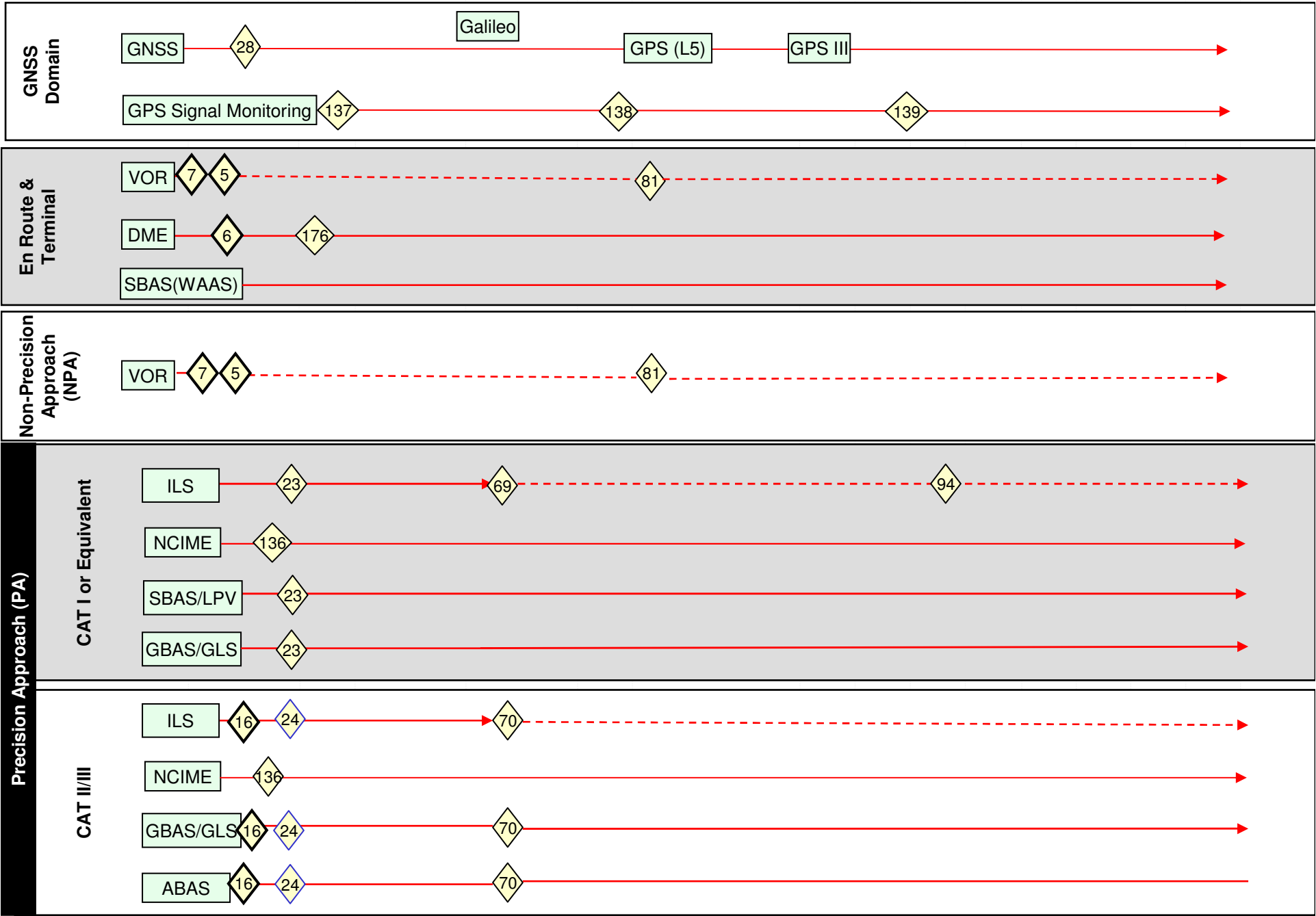
Facilities Roadmap Decisions (2 of 2)

-  22 2008 - See Automation Roadmap
-  32 2011 - See Automation Roadmap
-  47 2010 - See Communication Roadmap
-  55 2009 - See Automation Roadmap
-  58 2013 - See Automation Roadmap
-  109 2010 - See Automation Roadmap
-  110 2010 - See Automation Roadmap
-  112 2013 - See Automation Roadmap
-  113 2013 - See Automation Roadmap
-  114 2011 - See Automation Roadmap

Facilities Roadmap Assumptions

- Business Continuity will be integrated into the design of the NextGen Facilities
- Facilities will be built to mandated security and safety guidelines
- The airspace will be restructured to accommodate transitional and NextGen airspace concepts (e.g. Big Airspace, flexible airspace, classic en route airspace, mixed equipage airspace, special use airspace, super-density flexible airspace, etc.)
- NextGen Facilities will use a new geo-independent model, where service delivery is best aligned to manage costs and increase efficiencies
- Up to three (3) times the amount of air traffic will be managed with no resulting increase in the number of controllers
- ATC tasks will evolve consistent with changes in the management of airspace
- Available capabilities will include En Route Automation Modernization (ERAM), System Wide Information Management (SWIM), and a network addressable voice system
- Site locations will be determined according to a number of factors that consider safety, security, and human resources









2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025



Navigation Roadmap Decisions

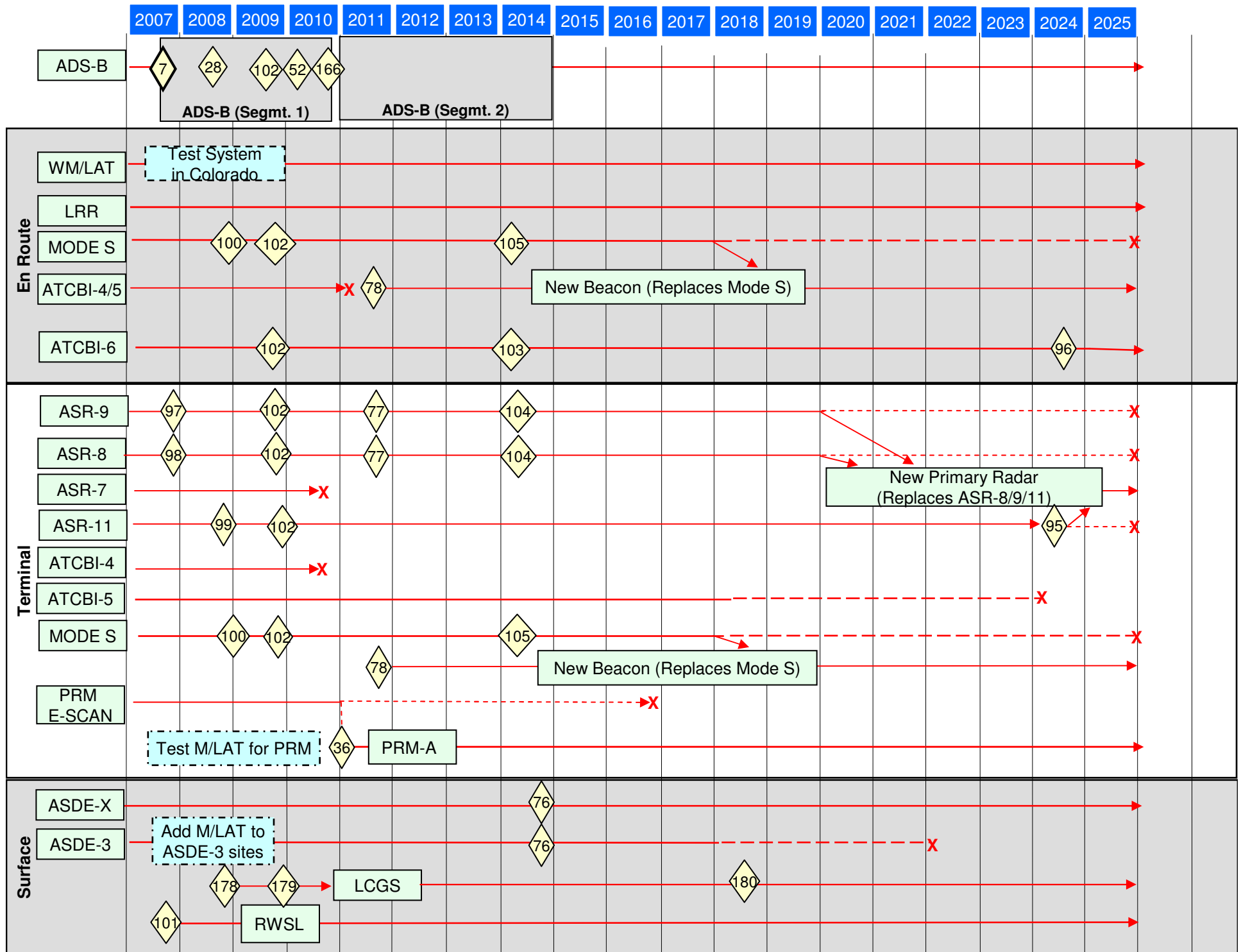
- 5 2007 - VOR decision for drawdown based on GNSS
- 6 2007 - Develop rightsizing DME Requirements, e.g., service volume, architecture, pathway
- 23 2008 - Decision on NextGen CAT I landing system
- 24 2008 - Decision on NextGen CAT II/III service, pending feasibility & schedule of potential ABAS/GBAS solutions and risk mitigation strategies
- 69 2012 - Begin ILS CAT I drawdown - limited backup at OEP airports
- 70 2012 - Determine if CAT II minima is the appropriate requirement at specific airports
- 81 2015 - VOR decision on complete drawdown
- 94 2020 - Decision on complete ILS CAT I drawdown

Navigation Roadmap Decisions (cont.)

-  2008 – NCIME Acquisition Decision
-  2009 – GPS Signal Monitoring Acquisition Decision
-  2014 – Signal Monitor Integration with GPS OCX Acquisition Decision
-  2019 – GPS Integrity Message Service ISD and WAAS Transition Decision
-  2009 - Develop phased approach for DME service to support RNAV/RNP
-  2007 – See Surveillance Roadmap
-  2007 - See Aircraft Roadmap
-  2008 – See Aircraft Roadmap

Navigation Roadmap Assumptions

- The FAA requires an aggressive transition to performance-based service.
 - Decisions needing to be made with the aviation community.
 - define standard services provided by FAA
 - define public use special services
 - define non-public services provide by the airport operator/user
- FAA will provide NAS-wide performance-based service:
 - RNAV/RNP (primarily GNSS)
 - Baseline approach service is CAT I or equivalent
- Policy determination on mitigation strategy for loss of GNSS
 - Determine if the mitigation strategy supports RNAV/RNP
 - FAA will provide CAT I ILS as backup at OEP airports (35 airports)
 - Determination if CAT II minima is the appropriate requirement at required airports
 - CAT III service requirements become responsibility of the airport operator/user
- Fleet Equipage
 - Today = Mixed Fleet – GNSS, D/D and D/D/I
 - Future = Fleet equipped with GNSS
 - Decision/specification of “operational” mitigation
- GPS modernization and sustainment is crucial
 - Block IIF 1st launch in 2008
 - Block III and OCX contract awards in 2008
 - Block III 1st launch in 2013
 - Block III initial crosslink capability by 2018
 - Dual civil frequency (L1 & L5) full operational capability by 2018
- The following aircraft decisions may have an impact on navigation: 16, 28, 53, 149, 151, 154, 155, 156, 157, 167, 168, 169, 170, 171, 172, 173. For full descriptions see decision spreadsheet.



Surveillance Roadmap Decisions (1 of 3)

- 7 2007 - Decision for ADS-B/TIS-B/FIS-B Segment 2 (NAS wide) implementation, including backup strategy (limited secondary radar is the approved backup strategy and includes retaining all terminal primary radars) (Completed)
- 36 2011 - Decision for migration of PRM to PRM-A, based on multilateration
- 52 2010 – Decision for Avionics Mandate/Rulemaking (ADS-B/MODE-S/UAT)
- 76 2014 - Decision for removal of surface primary radars, evolving requirements for security may impact decision
- 77 2011 - Decision to implement NextGen primary radar system which includes weather surveillance requirements
- 78 2011 - Decision to implement NextGen En Route and Terminal beacon systems
- 95 2024 - Decision for replacement of terminal primary radars (ASR-11 PSR) and removal of terminal beacons (ASR-11 MSSR)
- 96 2024 - Decision for replacement of en route beacons (ATCBI-6)

Surveillance Roadmap Decisions (2 of 3)

- 97 2007 - Decision for legacy radar (ASR-9) Service Life Extension Program (SLEP) through 2027
- 98 2007 - Decision for legacy radar (ASR-8) SLEP through 2025
- 99 2008 - Decision for ASR-11 Technology Refresh through 2025
- 100 2008 - Decision for legacy beacon (Mode S) SLEP through 2025
- 101 2007 - Decision for acquisition (JRC 2a decision) of RWSL systems
- 102 2009 – Decision on Implementing IP including ASTERIX data format for surface, terminal, and en route radar systems & ADS-B data.
- 103 2014 – Decision for ATCBI-6 Technology Refresh of beacons (ATCBI-6)
- 104 2014 - Decision for replacement of legacy primary radars (ASR-8, ASR-9), based on air traffic safety, security and weather surveillance requirements
- 105 2014 - Decision for limited en route and terminal replacement of legacy beacons (Mode S), and removal of remaining systems (Mode S)
- 28 2008 – See Aircraft Roadmap
- 166 2010 – See Aircraft Roadmap

Surveillance Roadmap Decisions (3 of 3)



2008 – JRC Initial Investment Decision for Low Ground Surface Surveillance (LCGS) System



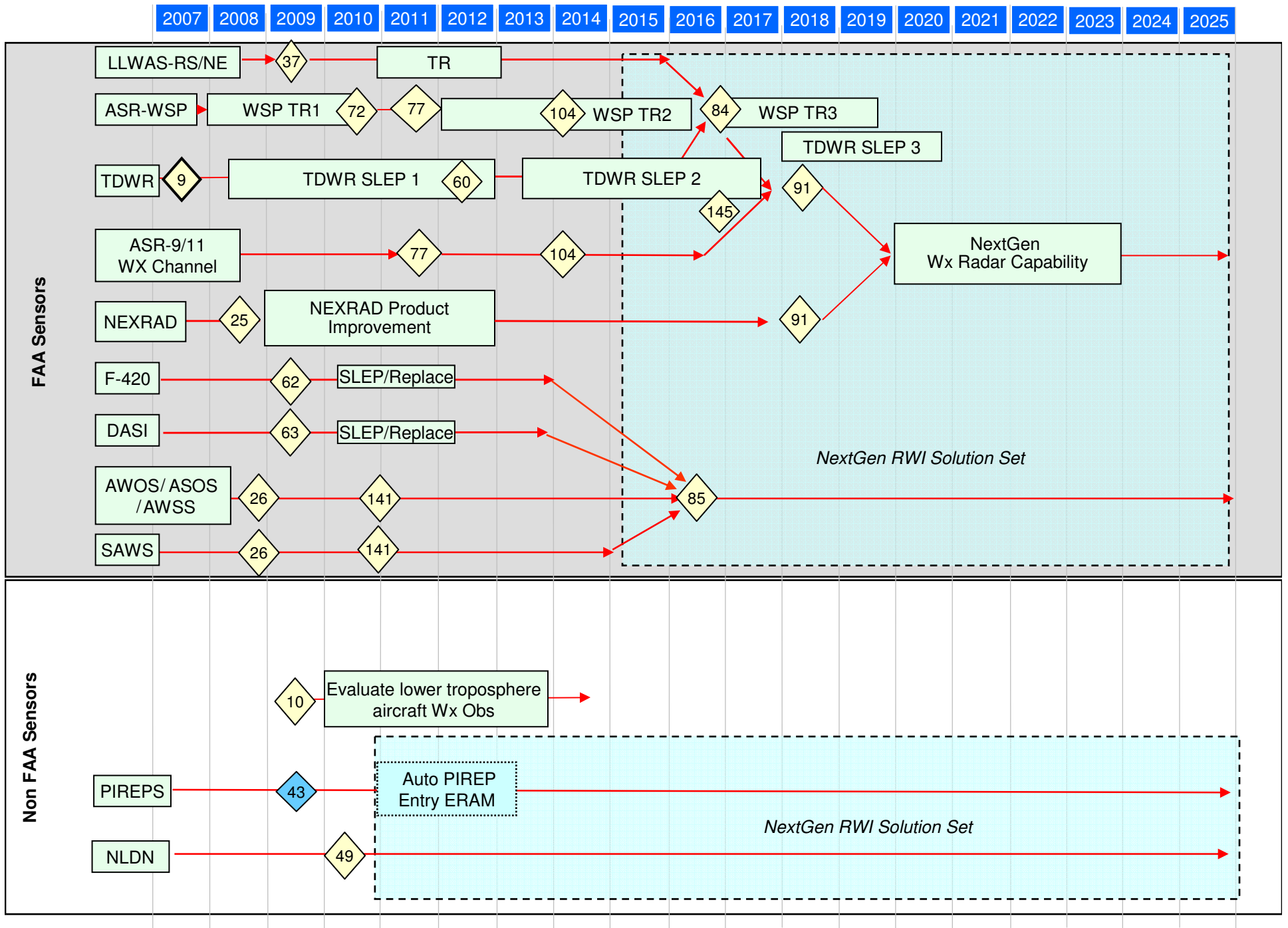
2009 – JRC Final Investment Decision for LCGS

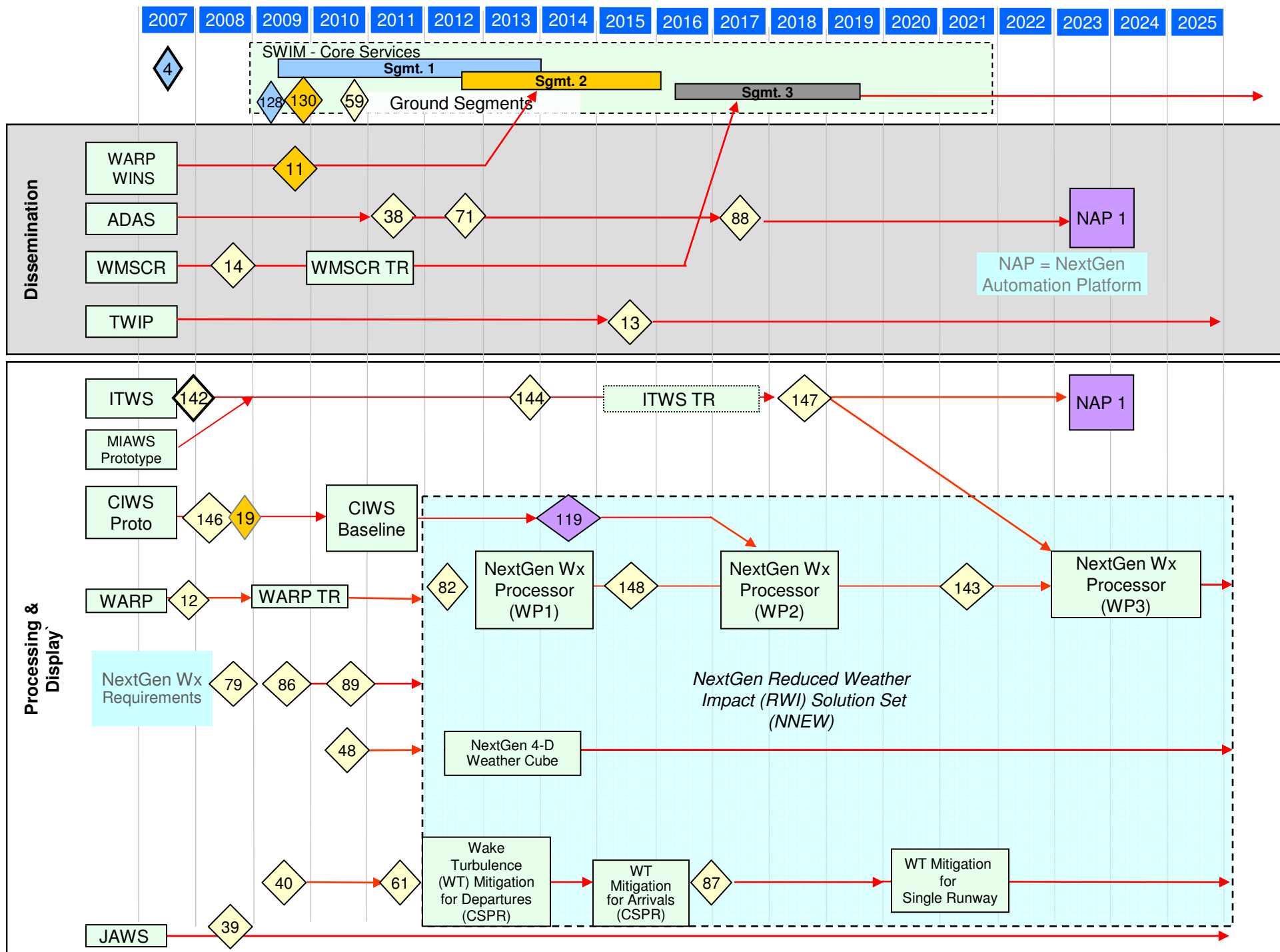


2018 – Decision on whether to remove LCGS and have the function assumed by ADS-B

Surveillance Roadmap Assumptions

- Migration to Automatic Dependent Surveillance - Broadcast (ADS-B) as primary means of surveillance
 - Airspace rule to be in effect and backup to be in place by 2020 (compliance date)
 - Existing surveillance infrastructure will remain in place until then
 - WM/LAT operations to be tested in western CONUS
- Backup to mitigate loss of on-board GPS positioning source required
 - Backup strategy was completed in January 2007
 - Retain all en route beacons (~150 monopulse systems with selective interrogation)
 - Retain limited set of terminal beacons at Operational Evolution Partnership (OEP)/High Density Terminals(~50 locations)
 - All terminal primary radars are retained
 - Used as safety (ATC) backup
- The Backup Strategy retains the Primary and Secondary Radars at selected locations past 2025. Additional technology refresh/SLEP work is required
- Surface primary radars may not be required after ADS-B rule compliance date
 - Requires mandated equipage of all surface vehicles
 - Surface surveillance to be supported by ADS-B
 - Multilateration will be retained as a backup to ADS-B at all ASDE airports
- Multilateration will replace PRM system
 - At non ASDE-X location full Multilateration is required
- The following aircraft decisions may have an impact on surveillance: 28, 52, 149, 151, 152, 153, 166. For full descriptions see decision spreadsheet.





Weather Roadmap Decisions (1 of 4)

- 9 2007 – Investment Decision for Terminal Doppler Weather Radar (TDWR) SLEP 1 (Completed)
- 10 2009 – Continue funding analysis/evaluation of lower troposphere aircraft Wx Obs to discern improvements to RUC convective products & possible improvement to ITWS wind products
- 11 2009 – Investment Decision to subsume WARP WINS Dissemination functionality into SWIM Seg 2
- 12 2007 – Investment Decision for WARP Tech Refresh (sustains WARP until subsumed by NextGen Wx Processor WP1)
- 13 2015 – Investment Decision to move TWIP to SWIM Air Segment
- 14 2008 – Investment Decision for WMSCR TR; Sustained to reach SWIM Seg 3
- 25 2008 – Investment Decision to fund science evolution on NEXRAD
- 26 2008 – Investment Decision to evaluate existing ASOS maintenance contract [with NWS] along with other alternatives for possible outsourcing
- 37 2009 – Investment Decision to Sustain LLWAS-RS wind shear capability with Tech Refresh 2011-2012
- 38 2011 – Investment Decision for SWIM to subsume Comms functionality of ADAS & WMSCR (most likely during SWIM Segment 3)
- 39 2008 – Investment Decision to Deploy End State JAWS

Weather Roadmap Decisions (2 of 4)

- 40 2009 – Begin Concept & Requirements Development process to acquire & deploy initial Wake Turbulence (WT) capability for Mitigation for Departures (WTMD) from Closely Spaced Parallel Runways (CSPR)
- 48 2010 – Investment Decision to fund FAA portion of NextGen 4-D weather cube
- 49 2010 – Investment Decision to obtain Total Lightning data
- 60 2012 – Investment Decision for TDWR SLEP 2
- 61 2011 – Investment Decision to add WT for Mitigation for Arrivals (WTMA) from CSPR
- 62 2009 – Investment Decision to SLEP (or replace) F-420 wind sensor/display
- 63 2009 – Investment Decision to SLEP (or replace) DASI
- 71 2012 – Investment Decision to transfer remaining ALDARS functionality to WMSCR or H/W Tech Refresh for ALDARS
- 72 2010 – Investment Decision for ASR-WSP Tech Refresh
- 79 2008 – Investment Decision (JRC 1A) for NextGen Wx Processor WP1 (will include turbulence data from DP 82)
- 82 2012 – Investment Decision for NextGen Wx Processor (WP2) to accept Enhanced Aircraft Obs (turbulence & humidity)
- 84 2016 – Decision to decommission ground-based wind shear capability (TDWR, ASR-WSP & LLWAS-RS/NE) and replace TDWR with less expensive weather radar; relates to WSP TR3
- 85 2016 – If Decision Point 141 is to “not outsource”, then Investment Decision needed to consolidate & replace automated surface observing systems

Weather Roadmap Decisions (3 of 4)

- 86 2009 – Investment Decision JRC-2A for NextGen Wx Processor WP1 (includes WARP and surface observing functionality)
- 87 2016 – Investment Decision to add WTMSR (WT Mitigation for Single Runway) decision support capability
- 88 2017 – Investment Decision to move ADAS/ALDARS functionality to NAP (NextGen Automation Platform) if not done by WMSCR earlier
- 89 2010 – Investment Decision JRC-2B for NextGen Wx Processor WP1
- 91 2018 – Investment Decision to SLEP 1) Wind Shear systems, 2) ASR-9/11 Wx Channel & 3) NEXRAD or replace them with a NextGen Wx Surveillance Capability
- 141 2011– Evaluate alternatives for system outsourcing
- 142 2007 – Final Investment Decision for ITWS to add 12 systems & provide Wx support (remote displays) to 25 satellite/reliever airports
- 143 2021 – Investment Decision to add in-flight icing obs to NextGen Wx Processor WP3
- 144 2013 – Investment Decision to Tech Refresh ITWS systems
- 145 2016 – Investment Decision for TDWR SLEP 3 (made in conjunction with Decision 84)
- 146 2008 – Final Investment Decision to baseline CIWS prototype & deploy at WJHTC; subsequent CIWS integration into NextGen Wx Processor WP2 & product display part of TFM-M WP2 (see Automation Roadmap 19 for timing)

Weather Roadmap Decisions (4 of 4)

- 147 2018 – Investment Decision to transition following to NextGen Wx Processor: 1) majority of ITWS functionality (remainder to NextGen Automation Platform (NAP)), 2) in situ aircraft wake vortex obs, & 3) Wx R&D algorithms matured since WP2 baselined
- 148 2015 – Investment Decision to integrate CIWS functionality into TFM or rehost functionality on NextGen Wx Processor
- 4 2007 – See Communication Roadmap
- 43 2009 - See Automation Roadmap
- 59 2011 – See Communication Roadmap
- 77 2011 – See Surveillance Roadmap
- 104 2014 – See Surveillance Roadmap
- 119 2014 – See Automation Roadmap
- 128 2007 – See Communication Roadmap
- 130 2009 – See Communication Roadmap

Weather Roadmap Assumptions (1 of 2)

- Ongoing NextGen Weather Functional Analysis may result in new/emerging requirements that create perturbations in NextGen Weather Architecture
- Weather Sensor Sustainment Issues
 - Weather information from Terminal radar continues as Req'd even if Terminal target surveillance no longer ground based (6-level Wx channel)
 - Evaluate need for Wind Shear/Microburst functionality to be ground based (SE study)
 - Regulatory action likely to define Wx sensor equipage for fully-capable aircraft
 - Evaluation of outsourcing ASOS maintenance – RFI issuance in very near term
 - Continue obtaining Surface Obs from non-Fed AWOS systems
- Migrate Wx to common Network Enabled Operations (NEO)
 - Fund FAA portion of 4-D Weather Cube
- WMSCR subsumed by SWIM during Segment 3 with ADAS/ALDARS functionality subsumed by NextGen Automation Platform (NAP)
- The following aircraft decisions may have an impact on weather: 28, 93, 149, 174. For full descriptions see decision spreadsheet.

Weather Roadmap Assumptions (2 of 2)

- Issues re Convergence of Wx Processing Capability
 - CIWS:
 - Prototype Baselined at WJHTC until integration into NextGen Wx Processor WP2
 - Includes improved Convective algorithms matured from Avn Wx R&D
 - WARP End of Service - WARP TR needed to sustain functionality until subsumed by the NextGen Wx Processor WP1 (2012-2014)
 - Develop Wx Reqmt's & pursue aggressive JRC schedule to field NextGen Wx Processor by 2012-2014
 - Develop NextGen Wx Processor
 - Incorporate WARP functionality that must be sustained
 - Validate additional functionality/requirements for NextGen Wx Processor
 - For NextGen Wx WP2, incorporate:
 - Wx R&D algorithms matured since WP1 baseline was frozen
 - CIWS Functionality
 - For NextGen Wx WP3, incorporate:
 - Wx R&D algorithms matured since WP2 baseline was frozen
 - Majority of ITWS functionality less functions allocated to NextGen Automation Processor to meet latency requirements of Wind Shear/Microburst & Wake Vortex Detect & Prediction advisories
 - May not be an FAA 'box'